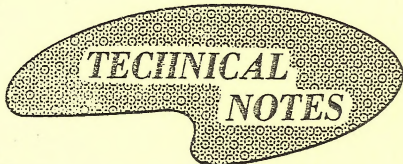


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March 28, 1966

SEASON LONG, DEFERRED, ROTATION GRAZING

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In this space age, systems have become very popular. Systems and computers have become status symbols and an aura of sophistication surrounds those who designate input, output, and feedback on flow charts. The administrator without a "systems analyst" is really "old hat". A researcher doesn't get very far in justifying support for research projects without using a "systems approach" in his pursuit of the unknown.

In contrast, the system concept has been an integral part of range management since its beginning. There may be earlier references to "grazing systems", but the earliest I know was made by Dr. A. W. Sampson in 1908 (5). Reporting on his range management research in the Wallowa Mountains during the summer of 1907 he stated, "even under the most conservative and moderate practices of handling stock on this range under the present system, it is questionable if the lands would be restored to their former productiveness within a reasonable length of time." After reporting his basic findings on principles of plant growth, he theorized that a protective grazing system should be continued to establish seedling plants. Although this publication makes no mention of deferred or rotation grazing, there are references to the possibilities of considering "an area of choice forage reserved for late grazing" (6). In 1913 (7), Sampson concluded that: "The most effective system of range management from the standpoint of vegetation alone will be the one that interferes the least with the growth of the plant up to the time

of seed maturity, and then aids in planting the seed." He was emphatic in stating that any system adopted must be practicable from the standpoint of the stockmen. At this time, Sampson classified grazing on western rangelands into three more or less distinct systems: (1) Season-long, or year-long grazing year after year"; (2) "season-long or year-long grazing with occasional total exclusion of stock during the entire year;" and (3) "deferred grazing, which aims at a rotation in the time of using each portion of the range, allowing the plants on one portion to mature their seed each year before they are cropped, and then grazing it to avoid the loss of forage through nonuse, and to assist reproduction by trampling in the seed."

The following year, 1914, (8) Sampson discussed the comparative merits of three grazing systems from the standpoint of the requirements of the range plants for growth and reproduction. For the first time, he presented his concept of a grazing system as a definite plan of using the forage crop in accordance with certain basic principles.

With this introduction he characterized year-long or season-long grazing by a lack of system, since they fail to provide for the removal of forage at any particular time in any locality. He also pointed out that the ultimate results to stock and range are not considered under this type of grazing.

With this background, we can now ask the question posed by the title of this paper. Are season long, deferred, rotation forms of grazing really grazing systems? In my opinion, all three can be classified as systems if they are carried out according to plans which include provisions for time of forage removal and consideration of effects on the range ecosystem. Thus, grazing season-long under a management plan which provides for range riding, water development and salting practices to control distribution and use as described by Skovlin (11) may be a more complex and sophisticated grazing system to execute than a rest-rotation system as described by Horney and Talbot (3). Both systems may be equally effective in accomplishing the desired range management results.

Each range unit or allotment requires an analysis to determine management requirements. The kind of grazing system chosen must be practical and acceptable to the stockman and provide opportunities to meet the management goals of the owner and/or administrator.

The grazing system selected should maintain or improve range condition and allow for optimum production of livestock. Improvement in range condition can frequently be accomplished through better distribution of livestock and practical management practices (1). It can also be accomplished by modifying a grazing system. The most effective system of management from the standpoint of vegetation alone will be the one that

interferes the least with the growth of the plant up to the time of seed maturity, and then aids in planting the seed.

Season Long Grazing

This practice has been common in most localities, and its unrestricted use has been credited with seriously reducing the carrying capacity of choice ranges. Under this use the range is grazed continuously throughout the season, or year long where the climate is mild; the only period of rest is during the time required for herbage to grow after being closely cropped to again permit grazing.

The disadvantages of continued season long grazing are that: (1) requirements for plant growth are seriously interfered with; (2) the forage crop becomes weakened and is materially decreased; (3) little or no seed is produced; (4) reproduction is prevented and there is a gradual decline in carrying capacity of the range; (5) animals tend to concentrate in the same places and on the same plants at the same time year after year, causing both forage and soil deterioration; (6) forage is wasted because of poor distribution of livestock; and (7) even if the range unit on the average is correctly used, the better forage plants on the continuously grazed areas are likely to be destroyed.

Season long grazing does not necessarily mean inefficient and destructive range use if it is planned with regard to basic range management principles. Season long grazing does not mean simply closing the gate behind the livestock and letting them graze at will. It does mean putting them in at different gates and at different times, recognizing livestock habits and training them to use range according to plans by riding, salting and watering practices.

The advantages of season-long grazing are: (1) a minimum of investment for range improvements is needed; (2) a minimum of handling and moving of livestock is required; and (3) different classes of forage can be used when they have the highest nutritive value and when they are the most palatable for livestock.

Deferred Grazing

In contrast to season long grazing, deferred grazing is based on growth requirements of vegetation from germination until new plants have been established. The system is designed specifically for ranges where the primary interest is to promote plant reproduction and restore or maintain vigor of existing vegetation. Deferred grazing provides for delay of grazing until after seed maturity, or for plants that reproduce vegetatively, until after the other reproductive systems fully develop. Essential principles (6) of the system are:

1. One range area is reserved for use during the period from seed maturity to the end of the grazing season.
2. Upon seed maturity the reserved area is grazed closely, but not to the extent of injuring the seed plants.
3. The same area is protected in the same way during the following season (second) and, if necessary, for subsequent seasons until the new plants have been securely established.
4. When the area has been thoroughly reseeded, and plants established, it is grazed early in the season and a second area is protected until the forage is matured.
5. This system is continued not only during the period required for restocking, but even after the areas have been fully revegetated. Through the continuous rotation it will not only be possible to restore the entire range, but once it has been restored, to maintain the full carrying capacity of the lands.

The advantages of deferred grazing over season long grazing are:

(1) the range can be used while the lands are being reseeded; (2) the vigor of the vegetation can be restored or maintained without the loss of a forage crop; (3) the seed is planted by action of the livestock; and (4) fire danger from excess herbage is eliminated.

Disadvantages of deferred grazing include (1) inability to defer areas because of lack of stock water; (2) greater investment required for fencing and water development; (3) mature forage on the deferred range unit is usually less nutritive than green forage which may be available from early cropping and subsequent regrowth; (4) the combination of less nutritious forage and additional moving of livestock may depress livestock gains; and (5) the system cannot be used where vegetation is not palatable after seed maturity.

Rotation Grazing

This system provides for use of two or more units without specific regard for seed production or seedling establishment. The rotation period is ordinarily within a growing season providing uniform close grazing and rest periods for the growth of new grass. Objectives of this system are (1) to avoid cropping the same subunit early in the spring year after year; and (2) to maintain the forage cover over the entire range area in the highest possible vigor, with little or no decrease in animal production (9).

This system is best adapted to ranges in relatively high condition where primary interest is in the maintenance of existing vegetation and the reduction of uneven grazing use.

A simple design for rotation grazing on a 4-month summer range would include four units, each grazed 1 month. The number of units used depends on the intensity of management, kind of vegetation, and physical characteristics of the land. The system requires fencing or careful herding. However, the system can be used effectively without fencing by an intensive job of riding, salting, and water access to control livestock distribution.

Specialized Vs. Season Long Systems

Fifty reports on studies comparing livestock and vegetation responses under season long grazing with some other system have been reviewed(2). Of these, 29 compared livestock responses to provide the following summary:

1. For 12 studies, livestock weight gains were greater under season long grazing as compared to some other systems.
2. For eight studies, livestock weight gains were less under season long grazing.
3. For nine studies, there was no appreciable difference in weight gains of livestock between continuous grazing and some other system.

Results of these studies showed no consistent relationship between livestock responses, a specific grazing system, and a particular kind of vegetation. Local conditions, such as quantity and quality of vegetation, the animals, and the season, apparently have a profound effect on how animals respond to a system and the vegetation of the area. Thirty-nine studies compared the responses of vegetation, measured by increases or decreases of desirable species, under season long versus some other system to provide the following summary:

1. For three studies, vegetation condition improved under continuous grazing.
2. For 31 studies, vegetation condition declined under continuous grazing as compared to some other system.
3. There were five studies in which there was no appreciable difference in vegetation condition comparing continuous and a specialized grazing system.

This review shows that some system of grazing other than season long, when the grazing season includes the growing season, is needed to improve vegetation condition. The primary advantage of some other form of deferred and/or rotation grazing is that the desirable forage species are periodically rested during the growing season. In addition, multiple range units provide more complete use of forage through better livestock distribution.

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